

University of Groningen

## Empirical Test of Bullies' Status Goals

Sijtsema, Jelle J.; Veenstra, Rene; Lindenberg, Siegwart; Salmivalli, Christina

*Published in:*  
Aggressive Behavior

*DOI:*  
[10.1002/ab.20282](https://doi.org/10.1002/ab.20282)

**IMPORTANT NOTE:** You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

*Document Version*  
Publisher's PDF, also known as Version of record

*Publication date:*  
2009

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Sijtsema, J. J., Veenstra, R., Lindenberg, S., & Salmivalli, C. (2009). Empirical Test of Bullies' Status Goals: Assessing Direct Goals, Aggression, and Prestige. *Aggressive Behavior*, 35(1), 57-67.  
<https://doi.org/10.1002/ab.20282>

**Copyright**

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

**Take-down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

*Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.*

# Empirical Test of Bullies' Status Goals: Assessing Direct Goals, Aggression, and Prestige

Jelle J. Sijtsema<sup>1\*</sup>, René Veenstra<sup>1,2</sup>, Siegwart Lindenberg<sup>1</sup>, and Christina Salmivalli<sup>2,3</sup>

<sup>1</sup>University of Groningen, Groningen, The Netherlands

<sup>2</sup>University of Turku, Turku, Finland

<sup>3</sup>University of Stavanger, Stavanger, Norway

The literature suggests that status goals are one of the driving motivations behind bullying behavior, yet this conjecture has rarely if ever been examined empirically. This study assessed status goals in three ways, using dyadic network analysis to analyze the relations and goals among 10–11 and 14–15 year olds in 22 school classes ( $N$  boys = 225;  $N$  girls = 277). As a validation bullies were contrasted with victims. Bullies had direct status goals (measured with the Interpersonal Goal Inventory for Children) and showed dominance as measured with proactive aggression. Moreover, as predicted from a goal perspective, bullying behavior was related to prestige in terms of perceived popularity. In contrast, victims lacked status goals, were only reactively aggressive, and low on prestige. That being popular is not the same as being liked could be shown by the fact that bullies were just as rejected as victims by their classmates. Eighth-grade bullies had more direct status goals than fourth-grade bullies, possibly indicating that striving for the popularity component of status increases in early adolescence. *Aggr. Behav.* 35:57–67, 2009. © 2008 Wiley-Liss, Inc.

**Keywords:** status goals; dominance; aggression; bullying; dyadic analyses

## INTRODUCTION

Why do some children and adolescents bully? Recently, it has been suggested that bullies' behavior might best be explained from the point of view of their goals [Pellegrini and Long, 2002; Salmivalli and Peets, 2008; Veenstra et al., 2007]. To attain status in a group is considered a universal goal [see Barkow, 1989], but in the course of evolution, status on the basis of dominance (achieved by eliciting coercion) was probably somewhat sidelined without being replaced by the quest for prestige [achieved by eliciting admiration, see also Gilbert and McGuire, 1998]. The idea is that bullies have a stronger status need (combining dominance and prestige) than most others and particularly than the victims they choose to bully. So far, the evidence of status-goal-driven behavior of bullies is indirect [Pellegrini and Long, 2002; Veenstra et al., 2007]. This study aims to address the question of status goals of bullies in three different ways. First, we assess the status goal *directly* in bullies and in victims. Then we will turn to looking at the *means* for achieving a dominance status goal. Aggression may be merely reactive, but if it is related to a status goal, it should be proactive for bullies. Finally, we will look at the possible *result*

of pursuing a status goal: popularity. Does bullying really contribute to one's status in the class, i.e. is the result in some way linked to the presumed goal?

## Bullying

We know that in many elementary and secondary school classes there exists a certain social hierarchy that is partly the result of aggressing against peers. When this concerns repetitive acts of aggression, the term bullying is appropriate. More specifically, bullying is defined as repeatedly aggressive acts in which one or more persons intend to harm or disturb another person physically, verbally, or psychologically [Olweus, 1978]. Bullying often happens in stable environments, like school classes, where victims have no possibility of escaping their bullies [Salmivalli et al., 1996]. Although bullying

\*Correspondence to: Jelle Sijtsema, ICS, University of Groningen, Grote Rozenstraat 31, 9712 TG Groningen, The Netherlands.  
E-mail: j.j.sijtsema@rug.nl

Received 1 February 2008; Revised 2 September 2008; Accepted 3 September 2008

Published online 16 October 2008 in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/ab.20282

can be the result of being provoked by the victim, some bullies openly admit that they want to be dominant and achieve social status [Boulton and Underwood, 1992]. This implies that some children and adolescents have stronger status goals than others and that has an effect on their behavior. Therefore, bullying other children should yield a highly valued outcome, in the sense of dominating others or being regarded as popular [Hawley, 2003; Lindenberg, 1996, 2001]. Though, we are aware of the fact that bullying does not only result from goals, but may also be related to other factors, such as temperament or parenting [see also Veenstra et al., 2005].

### Goals

A goal perspective has proven useful in developmental psychology [see for example, Ojanen et al., 2005; Pellegrini and Long, 2002; Veenstra et al., 2007]. However, there are also problems when using this perspective; goals cannot easily be inferred from behavior. For example, antisocial children do not openly endorse antisocial goals [see Renshaw and Asher, 1983]. On the other hand, it is not entirely clear whether children are aware of their goals, so simply asking them is not a sinecure either. Of particular interest is the fact that goals may have some trait-like characteristic but also are sensitive to changing situations [see Crick and Dodge, 1994; Erdley and Asher, 1996; Ojanen et al., 2007]. This makes direct assessment even more difficult. For all these reasons, we decided to combine direct and indirect goal assessment for the same data set. The direct assessment in our case will tap into more trait-like goals (a stronger status goal). However, this does not link the goal to situations of bullying. If such a link exists, it should be revealed by the bully's disposition to use unprovoked aggression for dominance. Thus, bullying should be linked to proactive (i.e. dominance directed), rather than reactive aggression. This will show indeed whether there is the willingness to use a coercive tool of showing yourself superior. In terms of a goal perspective, this use should satisfy the domination part of the status goal. But what about the prestige part? Can we establish a link of bullying to the achievement of prestige as well? If so, we should find that it pays to bully in terms of prestige. These are the questions we will deal with in this research.

### Direct Status Goals

In the first step we look at the status goals that bullies have. These directly assessed status goals are

asked from a person in a way that taps into both dominance (being heard by or being visible to others) and prestige (respect), though we are aware of other goals that adolescents have as well [e.g., to goal to perform academically well; Kiefer and Ryan, 2008]. A way to validate the direct goal assessment of bullies is to assess the goals of victims as well. The imbalance of power between bullies and victims makes it likely that they strive for different goals. If bullies really want to dominate they should select victims who are easier to dominate, i.e. who do not have strong status goals, lack certain skills, or do not have the dispositions to fight back. Although bullies are suggested to have the goal to dominate and being visible, victims might seek harm avoidance [Veenstra et al., 2007]. Though bullies and victims may not endorse status goals to an equal extent, victims are known to be submissive [Schwartz et al., 1993], and are thus likely to be low on status goals. Therefore, we contrast the goals of bullies and victims. We hypothesize that *status goals are more strongly related to being a bully than to being a victim*.

### Inferring Status Goals from the Means Being Used

Next to the direct assessment of status goals, we link bullies' status goals to dominance. Often two forms of aggression are distinguished: proactive (or instrumental) and reactive aggression (RA) [Dodge and Coie, 1987; Little et al., 2003a,b; Poulin and Boivin, 2000; Raine et al., 2006]. Proactive aggression (PA) is deliberate behavior directed toward an expected outcome, i.e. it is a means to an end. Reactive aggression, on the other hand, is an angry, defensive response to frustration or provocation [Crick and Dodge, 1996], meaning that harmful behavior from a peer can lead to an impulsive or aimless retaliation. That the two forms of aggression are distinct becomes apparent in their different correlates. RA is associated with a variety of social and behavioral difficulties [see Card and Little, 2006], whereas PA is not necessarily negatively perceived by peers, and not related to negative peer status and victimization [Poulin and Boivin, 2000].

Here, PA is seen as an indicator for the dominance goal. This is supported by the finding that bullies dominate others by the use of aggression [Pakaslahti and Keltikangas-Jarvinen, 1998; Pellegrini et al., 1999; Vaillancourt and Hymel, 2006]. Salmivalli et al. [2005] found that children with a positive self-perception and a negative peer perception (referring to the dismissing peer-relational schema) scored

high on dominance goals, which was in turn positively related to PA and negatively to both prosocial behavior and withdrawal. In addition, agentic goals [i.e. attaching importance to power, status, and dominance, see Locke, 2003] were associated with higher levels of aggression [Ojanen et al., 2005]. Pellegrini [2002] further suggested that aggression is, among others, related to dominance when new group structures are formed (e.g., when children are in a transition from elementary to secondary school). These findings make it likely that aggression is a tell tale sign of a status goal.

Contrasting bullies and victims can help us again to validate the hypothesis. If PA is a means to dominate, victims should be less proactive and much more reactive in their aggression than bullies. Victims find themselves more often in threatening situations where retaliation is a possible reaction to bullying. In short, we hypothesize that *being a bully is positively related to proactive aggression. In contrast, being a victim is not related to proactive aggression and positively to reactive aggression.*

### Inferring Status Goals from Popularity

Our third way to assess the status goals of bullies is to look at the presumed result of bullying in terms of prestige. It is useful to distinguish "perceived popularity" and "sociometric status" or "social preference" [see Farmer et al., 2003; Little et al., 2003a,b; Prinstein and Cillessen, 2003]. Sociometric status (referring to being liked) has traditionally been used to identify the high- and low-status youth. However, this is not a good measure of popularity when one wants to focus on respect in a group. A recent study showed that perceived popularity, assessed by asking students to directly nominate the most popular classmates, was more strongly linked to perceptions of power than social preference [Vaillancourt and Hymel, 2006]. Many individuals, who are perceived by classmates as being popular, are not necessarily well liked. The reverse is also true. Children can be liked, but perceived as unpopular. The distinction is shown in the different correlates. For instance, aggression is likely to lead to social rejection [Cillessen and Mayeux, 2004; Pakaslahti and Keltikangas-Jarvinen, 1998], whereas both relational and physical aggression are likely to predict perceived popularity [Cillessen and Mayeux, 2004].

In short, bullies are likely to be perceived as popular, but not as socially preferred. Again, we can add an extra validation to this hypothesis by looking at victims. If bullies want to gain popularity by

bullying other children, then they must pick on children who are neither liked nor popular. In other words, bullying must be selective in order to serve the prestige goal [see also Veenstra et al., 2007]. We formulate this in the following hypothesis: *being a bully is positively related to being perceived as popular, whereas being a victim is negatively related to being perceived as popular. Both being a bully or a victim is negatively related to social preference.* It might be that in preadolescence children want to affiliate with the socially preferred children, whereas in adolescence they want to affiliate with those are popular and visible in the classroom. In addition, based on Pellegrini [2002], one might expect that status goals are more pronounced in the adolescent cohort than in the preadolescent cohort. Adolescents attach more value to goals in order to gain access to the other sex, whereas preadolescents are not yet involved in romantic relationships as much as adolescents and may thus have fewer status goals. In the following, we will test these three ways of assessing a status goal in bullies. We adopted a dyadic analysis approach to analyze our data to the full extent.

## METHOD

### Sample

The data were collected in a small-sized town, Kaarina (ca. 20,000 inhabitants), in the southwest of Finland. The fourth- and eighth-grade children from all the elementary and middle schools in Kaarina filled in a questionnaire concerning bullying, aggression, self-perception and peer perception, self-efficacy, goals, and status. Questions derived from existing scales were translated into Finnish. Respondents consisted of two age groups: 13 fourth grade (10–11-year olds) school classes with a mean age of 10.6 years ( $SD = .37$ ) and 12 eighth grade (14–15-year olds) school classes with a mean age of 14.6 years ( $SD = .30$ ). Peer nomination data were collected separately for boys and girls; therefore, we only analyzed same-sex dyads. As is common in Finland for school surveys, passive consent by the parents was given for participation. First, the research assistants informed the children about the procedure. Subsequently, the children filled in the questionnaire in the classrooms, while being supervised by two research assistants. During the completion of the questionnaire it was made sure that the children were not influenced by their peers. Questions were based on self-reports and peer reports. Peer reports were focused on same-sex reports.

The original sample constituted 25 boy and 25 girl networks with sizes ranging from 2 to 19. Classrooms containing less than eight same-sex children were left out of the analyses, leaving a sample of 21 boy networks ( $N = 251$ ), consisting of 12 fourth grades and 9 eighth grades, and 22 girl networks ( $N = 277$ ), consisting of 12 fourth grades and 10 eighth grades.

## Measures

**Peer-observed networks.** Bully-victim dyads were identified with the question “who bullies whom?” The participants/respondents were instructed to draw arrows between two columns containing the names of all same-sex children in a class to denote the bullies and their victims. These arrows represented the ties in the bully-victim networks. We measured the degree of victimization by summing up the number of ties directed toward a person; the bullying degree was measured by summing up the ties directed away from a person. We then used a cutting point value of two to exclude the dyads that were only observed once. For the construction of the matrices the Ucinet 6.0 program for social network analysis was used [Borgatti et al., 2002]. Matrices were constructed per classroom and sex. Therefore, analyses were conducted separately for boys and girls and for both age groups. In the boy sample, there were some victims who also bullied. This goes against the clear identification of being either a bully or a victim and therefore we left these cases ( $N = 26$ ) out of the analyses. These boys were denoted as clear bully-victims, meaning that their bullying and victimization degrees were of equal size. Among girls there were no bully-victims. The final sample thus consisted of 225 boys and 277 girls.

**Direct status goals.** For the direct measurement of status goals we used the Interpersonal Goals Inventory for Children (IGI-C), based on self-reports [Ojanen et al., 2005]. The IGI-C distinguishes between agentic and communal goals. We used the subscale agentic goals ( $\alpha = .68$ ), consisting of three items relating to status goals. Children were asked how important they find it that “you appear self-confident and make an impression on the others,” “the others think you are smart,” and “the others respect and admire you.” The scores of the individual items ranged from 0 (of no importance to me at all) to 3 (very important to me).

**Reactive and proactive aggression.** The scales for RA ( $\alpha = .85$ ) and PA ( $\alpha = .83$ ) were developed by Dodge and Coie (1987). RA consists

of the items “when teased fights back,” “blames other in fights,” and “overreacts angrily to accidents” and PA consists of the items “uses physical force to dominate,” “gets others to gang up on a peer,” and “threatens and bullies others”. The scores on these items were based on same-sex peer reports. The number of times someone was mentioned by peers as being aggressive were counted and then divided by the possible number of nominations. The scores could range from 0 to 3. Confirmatory factor analysis in Mplus (Muthén and Muthén, 2004) showed a sufficient fit of the two-factor model,  $\chi^2(8) = 119.54$ ,  $P < .01$ , CFI = .95, RMSEA < .01, thereby showing that it was useful to distinguish between PA and RA.

### Social preference and perceived popularity.

Social preference was measured using peer nominations of liked-most and liked-least peers; perceived popularity was assessed by asking participants to directly identify the “popular” members of their grade [Cillessen and Mayeux, 2004]. Children were allowed to nominate up to three same-sex peers for each question. Subsequently, nominations were summed up and divided by the number of possible nominations. To measure social preference we subtracted the dislike nominations from the like nominations. The same was done for perceived popularity, where children had to nominate the most and least popular peers.

## The $p_2$ Model

In our study we deal with bully-victim dyads. Because the data were collected in a dyadic manner, we needed a program that could handle these data properly by taking into account the fact that some bullies harass/target several victims and some victims are being bullied by several bullies (i.e. the dependencies between the nominations). In addition, we need to consider the fact that we analyze school classes. In other words, we have to control for the dependencies between the dyads and the dependencies of dyads within the same classroom. Logistic regression analysis is unable to do this. We used the  $p_2$  model, which was developed to explain the relationships between actors in a network, using characteristics of nominators, targets, and dyads [see also: Baerveldt et al., 2004; Van Duijn et al., 2004]. The  $p_2$  model can be regarded as the logistic regression model for dyads and complements the well-known Social Relations Model [Kenny and La Voie, 1984; Snijders and Kenny, 1999], which is suited for continuous dyadic outcomes. The multi-level version of  $p_2$  made it also possible to analyze

multiple networks at the same time, which increases the power to detect possible actor or dyadic covariate effects [Zijlstra et al., 2006]. Another great advantage of the  $p_2$  model was the fact that no arbitrary choices had to be made about who the bullies and victims were. For example, both a child who bullied three peers and another child who bullied six peers are taken into account only once in a normal multilevel regression, whereas  $p_2$  was able to take, respectively, the three and six separate relations into account. Unlike a univariate logistic regression model the  $p_2$  model controls for dependencies in the network data, namely differences in nominating (nominator variance) and receiving nominations (target variance), reciprocity, and density between the networks. We will shortly explain these network parameters.

**Density.** The density of the network indicates the quantity of relations in the network. In our case the density effect points to the likelihood of the presence of a bully–victim relation.

**Reciprocity.** The reciprocity parameter indicates the mutuality of the relations in the network. A positive effect thus means that ties between individuals are likely to be reciprocated.

**Nominator and target variance.** The nominator variance parameter displays the amount of variation between bullies in their bullying behavior. The target variance parameter on the other hand, displays the variation between victims in the number of bullies that bully them. The covariance between the two gives us information about the co-occurrence of being nominated as a bully and as a victim.

Our data had a three-level structure: Networks of school classes (level 3) with 528 individuals (level 2) and their ties to classmates (level 1). Because individuals can have more than one relation inside the classroom, the  $p_2$  model controls for the fact that several ties can be embedded in one individual.

## RESULTS

First, we calculated descriptive results and Pearson correlations between the dependent and independent variables. Next to that, independent samples  $t$ -tests were performed to see whether there were any significant sex differences. Subsequently, bully–victims dyads were analyzed with the  $p_2$  model for network data. The independent variables in the  $p_2$  model were standardized by gender.

### Descriptive Statistics

Table I shows the means, standard deviations, and sex differences of the different variables. There was no difference in importance attached to direct status goals between boys and girls. Scores for both reactive and PA were significantly higher for boys than for girls, as were the bullying and victimization degrees. For both status measures, the means were quite similar. In addition, we conducted independent sample  $t$ -tests on all variables for grade level, but the means of the two grades did not differ significantly. Table II shows the correlations between the used variables, separated by grade level. We saw that the bullying degree correlated negatively with both social status measures among eighth graders. The bullying and victimization degrees also correlated positively with sex, indicating that boys scored higher on both. Among eighth graders, status goals correlated positively with both PA ( $r = .15$ ) and bullying degree ( $r = .14$ ). Furthermore, perceived popularity was positively associated with PA and, in the eighth grade, with RA, whereas social preference was negatively associated with both forms of aggression. Although the  $t$ -tests showed no grade differences, Table II shows that RA and PA were associated among boys in the eighth grade, but not in the fourth grade. Moreover, perceived popularity and RA were positively associated in the eighth, but not in the fourth grade. Last, the association

TABLE I. Sex Differences in Bullying and Victimization and All Individual Characteristics

Variable	Sample			Boys			Girls			Differences		
	<i>N</i>	Mean	SD	<i>N</i>	Mean	SD	<i>N</i>	Mean	SD	<i>t</i>	df <sup>a</sup>	<i>P</i>
Status goals	514	1.47	.67	241	1.52	.64	273	1.43	.70	1.49	511.67	.14
Reactive aggression	562	0.36	.51	264	0.42	.50	298	0.32	.50	2.99	539.78	<.01
Proactive aggression	562	0.29	.45	264	0.38	.49	298	0.22	.41	4.12	517.45	<.01
Social preference	562	0.08	.35	264	0.10	.38	298	0.06	.31	1.46	509.58	.15
Perceived popularity	562	0.02	.44	264	0.02	.42	298	0.02	.45	0.26	558.20	.80
Victimization degree	543	0.07	.15	253	0.11	.19	290	0.03	.07	5.76	312.77	<.01
Bullying degree	543	0.07	.14	253	0.11	.18	290	0.03	.08	6.31	340.11	<.01

<sup>a</sup>Equal variances are not assumed.

**TABLE II. Correlations Between Sex and the Independent and Dependent Variables**

	1	2	3	4	5	6	7	8
1. Sex	—	-.02	.03	.06	.07	-.02	.18**	.17**
2. Status goals	.18**	—	.10	.10	-.04	.11	.07	.02
3. Reactive aggression	.21**	.10	—	.87**	-.42**	.03	.64**	.23**
4. Proactive aggression	.26**	.15*	.86**	—	-.35**	.13*	.63**	.17**
5. Social preference	.08	-.10	-.24**	-.19**	—	.51**	-.23**	-.37**
6. Perceived popularity	.03	.05	.27**	.30**	.44**	—	.06	-.30**
7. Victimization degree	.30**	.03	.27**	.29**	-.13	.06	—	.17**
8. Bullying degree	.21**	.14*	.23**	.18**	-.34**	-.22**	.25**	—

\* $P < .05$ ; \*\* $P < .01$ . Grade 4 ( $M$  age = 10.6) above and Grade 8 ( $M$  age = 14.6) below the diagonal.

between victimization degree and PA was strongest in the fourth grade.

### $p_2$ Analyses

We took a two-step approach to analyzing our dyadic data with the  $p_2$  model; first, we estimated the parameters separately per hypothesis, that is, in the first set we only included direct status goals, in the second set only the aggression variables, and in the third set only the social status variables. In addition, we estimated a full model containing all five target (victim) and nominator (bully) covariates (Tables V and VI). In the full models we also presented information about random and network effects. All analyses were conducted separately for sex and grade because the data were also collected separately.

Model 1 of Tables III and IV show the result of direct status goals on being a bully or a victim for boys and girls, respectively. In our first hypothesis we stated that status goals would be more strongly positive related to being a bully than to being a victim. As Tables III and IV show, this was the case only for eighth-grade boys. Eighth-grade male bullies attached importance to direct status goals (0.99,  $P < .05$ ), whereas male victims attached significantly less importance to these goals ( $-1.58$ ,  $P < .05$ ). Eighth-grade female victims attached less importance to direct status goals ( $-1.06$ ,  $P < .05$ ).

Secondly, in Model 2 we tested our second hypothesis that being a bully would be positively related to PA. In contrast, being a victim would not be related to PA and positively related to reactive aggression. Our results were partly in line with this hypothesis, even though they included marginally significant outcomes. Both fourth- and eighth-grade male bullies displayed PA (respectively, 3.18,  $P < .05$  and 2.29,  $P < .10$ ), whereas victims do not. The results for RA were nonsignificant. For girls, bullies

**TABLE III. Nominator and Target Effects of the Multilevel  $p_2$  Model for Observed Boy Networks (Separately Estimated Effects)**

	Nominator (bully)		Target (victim)	
	Posterior mean	S.E.	Posterior mean	S.E.
<i>Fourth grade</i>				
Model 1				
Status goals	0.44	0.41	0.05	0.41
Model 2				
Proactive aggression	3.18**	0.90	-1.88	1.51
Reactive aggression	0.38	0.72	1.54	1.29
Model 3				
Social preference	-2.38†	1.29	-2.94*	1.24
Perceived popularity	1.61	1.23	-1.19	1.11
<i>Eighth grade</i>				
Model 1				
Status goals	0.99*	0.52	-1.58*	0.64
Model 2				
Proactive aggression	2.29†	1.72	0.92	1.54
Reactive aggression	-0.57	1.57	0.76	1.56
Model 3				
Social preference	-2.43*	1.27	-2.58	2.46
Perceived popularity	1.46	1.15	-1.01	2.46

† $P < .10$ ; \* $P < .05$ ; \*\* $P < .01$ .

scored only significantly higher on reactive (2.44,  $P < .05$ ) and not on PA than victims.

Thirdly, Model 3 presents the results regarding the third hypothesis about popularity and social preference. We argued that being a bully would be positively related to prestige (i.e. being perceived as popular), whereas being a victim would be negatively related to being perceived as popular. In addition, both being a bully or a victim would be negatively related to social preference. For boys, we found that bullies were typically low on social preference, as were fourth-grade victims ( $-2.94$ ,  $P < .05$ ). However, we did not find the expected positive link between bullying and perceived popularity. The results on social status for fourth-grade female bullies were clear: they are low on social

**TABLE IV. Nominator and Target Effects of the Multilevel  $p_2$  Model for Observed Girl Networks (Separately Estimated Effects)**

	Nominator (bully)		Target (victim)	
	Posterior mean	S.E.	Posterior mean	S.E.
<i>Fourth grade</i>				
Model 1				
Status goals	0.21	0.93	-0.92	0.71
Model 2				
Proactive aggression	1.42	1.47	-3.46	2.16
Reactive aggression	2.44*	1.12	2.45	1.56
Model 3				
Social preference	-5.43**	1.18	-0.51	1.39
Perceived popularity	2.06**	0.76	-1.78*	0.94
<i>Eighth grade</i>				
Model 1				
Status goals	0.80	0.55	-1.06*	0.50
Model 2				
Proactive aggression	0.49	2.00	-8.37	7.06
Reactive aggression	1.26	1.67	-4.06†	2.30
Model 3				
Social preference	-0.47	1.35	-3.11*	1.30
Perceived popularity	1.05	0.75	-2.05*	0.95

† $P < .10$ ; \* $P < .05$ ; \*\* $P < .01$ .**TABLE V. Nominator and Target Effects of the Multilevel  $p_2$  Model for Observed Boy Networks**

Effects	Fourth grade		Eighth grade	
	Posterior mean	S.E.	Posterior mean	S.E.
<i>Network effects</i>				
Density	-7.90**	1.43	-8.07**	2.15
Reciprocity	4.28**	1.86	4.08**	1.62
<i>Random effects</i>				
Nominator variance	2.66**	1.68	4.91**	2.67
Target variance	4.80**	2.11	14.16**	6.70
Nominator-target variance	-2.92**	1.75	-3.27	3.01
Class variance	0.61	0.53	0.92	1.15
<i>Nominator (bully) covariates</i>				
Status goals	0.26	0.36	1.24*	0.60
Proactive aggression	3.85**	1.03	0.70	0.85
Reactive aggression	0.44	0.90	0.10	0.91
Social preference	1.76	1.67	-1.89	1.28
Perceived popularity	-1.69	1.28	0.98	1.03
<i>Target (victim) covariates</i>				
Status goals	0.06	0.38	-2.15*	0.90
Proactive aggression	-1.56	1.36	1.45	1.37
Reactive aggression	-0.24	1.07	1.11	1.10
Social preference	-5.15**	2.22	-2.29	2.00
Perceived popularity	0.04	1.55	-0.90	1.62

\* $P < .05$ ; \*\* $P < .01$ .

preference (-5.43,  $P < .05$ ), but are perceived as popular (2.06,  $P < .05$ ). This is in contrast to female victims, who were perceived as unpopular and, in

**TABLE VI. Nominator and Target Effects of the Multilevel  $p_2$  Model for Observed Girl Networks**

Effects	Fourth grade		Eighth grade	
	Posterior mean	S.E.	Posterior mean	S.E.
<i>Network effects</i>				
Density	-7.88**	1.57	-10.49**	1.88
Reciprocity	-2.32	5.31	-0.97	5.62
<i>Random effects</i>				
Nominator variance	3.01**	1.60	6.22**	4.22
Target variance	5.08**	2.93	6.37**	4.41
Nominator-target variance	-3.18	2.36	-4.79	2.52
Class variance	0.95	1.19	2.47	4.39
<i>Nominator (bully) covariates</i>				
Status goals	-0.71	0.73	1.23†	0.70
Proactive aggression	0.32	2.10	0.37	2.25
Reactive aggression	3.00†	1.78	1.43	2.26
Social preference	-1.94	1.77	0.64	2.16
Perceived popularity	2.00	1.54	0.12	1.15
<i>Target (victim) covariates</i>				
Status goals	-1.20*	0.63	-0.53	0.92
Proactive aggression	-2.59	2.78	-7.12†	4.25
Reactive aggression	2.68	2.04	-0.70	3.16
Social preference	-0.16	2.00	-4.97**	2.08
Perceived popularity	-2.22	1.40	-0.83	1.33

† $P < .10$ ; \* $P < .05$ ; \*\* $P < .01$ .

the case of eighth-grade victims, significantly rejected by their peers (-3.11,  $P < .05$ ).

Tables V and VI show the results of the full models for boys and girls. To account for the fact that dyads are embedded in larger networks, we control for two network effects: density and reciprocity. Density is the number of ties in a network and in this case it gives information about the likelihood of the presence of bully-victim relations in the classrooms. The negative density effect shows that a bully-victim relation between children is less likely than the lack of such a relation. The reciprocity effect tells whether ties between actors are mutual. There was a significant positive reciprocity effect for boys, implying that male bullies were likely to be bullied by other classmates as well. For girls there was no significant reciprocity. The random effects show that there was significant variation among participants in being bullies or victims. However, for girls there has no significant covariance between the two. Furthermore, we estimated several random effects. Random effects here indicate significant differences between participants in bullying (nominator variance) and being victimized (target variance). The negative nominator-target covariance among fourth graders means that participants who bully a lot are not likely to be



victimized and vice versa. Class variances showed no significant differences between classes. The effects for direct status goals still remain in the full models and showed that whereas eighth-grade bullies attached importance to direct status goals, eighth-grade victims did not. The full models also show that fourth-grade female victims attached little importance to direct status goals ( $-1.20$ ,  $P < .05$ ). Moreover, there was a marginally negative effect of RA and they scored negatively on social preference and perceived popularity.

## DISCUSSION

At beginning of this article we asked: “why do some children bully their peers whereas others do not?” We tried to answer this question by linking status goals, dominant behavior, and prestige to bullying. As a validation of our theorizing and hypotheses, we contrasted bullies’ goals with those of victims. Furthermore, we assessed status goals in three different ways, we focused on the direct status goals, the means for achieving status goals, and the result of pursuing status goals.

Our separate analyses (Tables III and IV) showed that among eighth graders directly measured status goals are important, except for eighth-grade female bullies. There was also a clear distinction between male bullies and victims; though bullies attached values to these goals, victims did not. The lack of direct status goals among fourth graders is consistent with other studies [Ojanen et al., 2005; Pellegrini and Long, 2002]. This might suggest that as bullies become adolescents, status goals (and especially the prestige component) become more important, whereas in childhood bullying is less strategic and immature. Thus, the striving for status increases when children are coming closer to adolescence. According to Pellegrini [2002] 14- to 15-year olds attach more value to status goals to gain access to heterosexual relationships. For 10- to 11-year olds heterosexual relationships are not yet of great interest.

Ojanen et al. [2005, 2007], who used an extended agentic score, found that boys had more agentic goals than girls. In contrast, our descriptive analyses did not show differences between boys and girls on direct status goals.

In fourth-grade boys, we found evidence for the assumption that PA is used as a means of fulfilling status goals. Male bullies were high on PA, which is in line with earlier research [see Camodeca and Goossens, 2005; Dodge and Coie, 1987; Salmivalli

and Nieminen, 2002]. Among female bullies this was less obvious, they did not have status goals and, in the fourth-grade sample, were also more reactively aggressive. There are several reasons that might account for these differences between boys and girls. It might be that the items in our reactive aggressive scale are more applicable to girls, whereas the proactive items are more applicable to boys. Another explanation for the difference between boys and girls is that boys are more focused on dominating [Pellegrini and Long, 2002] and thus use more PA as a means to achieve this. Next to that, the PA items we used had a more physical than relational nature.

The third way to assess status goals was to look at a goal-related outcome of bullying behavior by measuring prestige. Fourth-grade female bullies were popular, whereas fourth- and eighth-grade female victims were not, which replicates the findings of many studies [e.g., Vaillancourt and Hymel, 2006]. For boys we found no popularity effects. In the case of fourth-grade girls, bullies were rejected by their classmates and also tended to be perceived as popular. For this group of females bullying is mostly aimed at prestige, but at the cost of social preference. Female victims on the other hand, were in both grades low on perceived popularity and, in the eighth grade, low on social preference. The latter has also been shown by previous research [e.g., Salmivalli et al., 1996; Veenstra et al., 2005, 2007]. This provides some evidence for the idea that they are easy targets for bullies’ domination, because it is likely that their victimization elicits little support from peers. Bullies do not have to fear retaliation, because many victims are rejected or unpopular [Hodges et al., 1997; Perry et al., 1988]. Again, as mentioned above, eighth graders may be better able to focus on victims with low status goals than fourth graders.

All in all, the results showed the importance of focusing on status goals when it comes to bullying. Though the results were sometimes ambiguous, in general bullying can be regarded as intentional, in particular among adolescent bullies. Some bullies are able to dominate their weaker classmates. That is, they select victims who are low on social status and who refrain from using PA. On top of that, in the case of fourth-grade females, bullies receive prestige from their classmates, which reinforces their bullying behavior. For the sake of intervention, the results suggest that teachers should stress that realizing status goals by bullying is undesirable. As a solution, schools and teachers should provide different ways for these youths to fulfill their status

goals (e.g., sport activities, group work). Moreover, bullying others is self-reinforcing because it can in some groups lead to dominating peers and prestige, which a bully can regard as a confirmation of his or her behavior. As a consequence, without intervention, bullies are likely to continue their behavior, which may lead to deviance and delinquency in (late) adolescence and even further in life. Even more important would be interventions for the ones who are victimized. In two of the four groups, these youths are heavily rejected and harassed by their classmates, which increases the risk of unhealthy effects for further development [Kaltiala-Heino et al., 2000; Kumpulainen and Rasanen, 2000; Loeber and Dishion, 1983; Nansel et al., 2001, 2004; Olweus, 1993a,b,c]. For them, having status goals may be encouraged.

Another issue we want to stress is that more attention needs to be drawn to dyadic and group processes [see also Haynie et al., 2001; Rodkin and Berger, 2008]. Bullies are often being assisted and reinforced by the group [O'Connell et al., 1999; Salmivalli et al., 1996] and in general they interact in large groups [Boulton and Underwood, 1992]. Especially as children come closer to adolescence and status goals become more apparent, the groups in which they are embedded will likely provide aggressive youths with social status. Indeed, Rodkin et al. [2006] have shown that nominating the "cool" children in the class is heavily dependent on the groups in which these children are embedded. Therefore, one way to study bullying relations more thoroughly is to include friendship or affiliation groups to control for popularity nominations within the bully's friendship group [see also Ellis and Zarbatany, 2007].

## Limitations

Clearly, our study has some limitations. One limitation was the way the data were gathered. As only same-sex nominations were available, we could only use same-sex networks in the analyses, which meant that bullying relationships between boys and girls were excluded. This is an omission, because bully-victim relations are likely to occur in same-sex as well as opposite-sex dyads [Veenstra et al., 2007]. One additional concern is that this decreased the size of our sample. Considering that bullying is a relatively uncommon behavior, increasing the sample size provides more powerful analyses.

A second limitation resulting from the peer-reported data was the difference in reporting

between classmates. Some children drew very dense bully-victim networks, whereas others in the same class stated that there was no bullying at all. These contrasting perceptions made us treat the data with care. We avoided most of this problem by leaving the bully relations that were only perceived by one person in the classroom out of the analyses. Another drawback with peer reported data on bully-victim relations is that more subtle forms of bullying are unlikely to be perceived by the class, and thereby one misses out on some victims. In return, we suffered less from underreporting of bullies [Monks and Smith, 2006]. Compared with the method of self-proclaimed bullies and victims [Veenstra et al., 2007], both have their advantages and shortcomings.

Another limitation was that our study provides no information about bully-victims. We excluded bully-victims because they probably have neither a clear dominance nor a clear harm avoidance goal. Nonetheless, future research may want to look at the motivations behind bullying behavior in bully-victims.

The last limitation concerned the assessment of PA, consisting of three items. One item asked "who bullies and threatens others", which caused an overlap between the dependent and the independent variable (the bullying degree). This partly caused high correlations between PA and the bullying degree. However, this overlap is not as problematic as it may seem. Correlations showed that RA also correlated highly positively with the bullying degree, indicating that the overlapping proactively aggressive item is not solely responsible for the high correlation, but that aggression itself is. Furthermore, we did not want to leave out any items of these existing scales, for it would decrease the comparability of this study with other studies on aggression.

The greatest strength of our study was the assessment of status goals in three ways. We were able to show that bullies attach importance to dominance status goals, that they use PA as a means for achieving dominance status goals, and that the result of pursuing these goals leads to popularity but low social preference. As a validation, we contrasted these findings to those of victims. Another strong point of this study lies in the method of analyzing. We analyzed the individual effects, while taking the dyadic nature of all bullying relations and the fact that these relations were nested within school classes into account. Analyzing all these data in one model increased the power to detect nominator and target effects [Zijlstra et al., 2006]. Hence, we were

able to show differences in status goals between bullies and victims.

To conclude, this study has cleared a part of the path toward studying bullying and status goals in a dyadic manner. Future studies, with data from different informants, a longitudinal setup, and a broader assessment of status goals may advance upon our study. This way, the age differences in the means to achieving dominance status goals could be assessed as well as the direction of the effects (i.e. do goals lead to behavior, which in turn leads to prestige?). Furthermore, we showed that the dyad plays an important role, because bullying is something that can only occur between two or more persons. Taking characteristics of both bullies and victims into account improves our insight into the motivations behind bullying and the results of this behavior, which may lead to better interventions and preventions of bullying. Moreover, we want to emphasize that for dealing with bully–victim relations it is useful to distinguish between effects caused at the individual, dyadic, and group level. Interventions should focus on providing possibilities for children to achieve status in different ways, thereby avoiding the bullying strategy to which seemingly many children with status goals have adapted their behavior.

## REFERENCES

- Baerveldt C, Van Duijn MAJ, Vermeij L, Van Hemert DA. 2004. Ethnic boundaries and personal choice. Assessing the influence of individual inclinations to choose intra-ethnic relationships on pupils' networks. *Soc Netw* 26:55–74.
- Barkow JH. 1987. The elastic between genes and culture. *Ethol Sociobiol* 10:111–129.
- Borgatti SP, Everett MG, Freeman LC. 2002. *Ucinet for Windows: Software for Social Network Analysis* [Computer Software]. Harvard, MA: Analytic Technologies.
- Boulton MJ, Underwood K. 1992. Bully victim problems among middle school children. *Br J Educ Psychol* 62:73–87.
- Camodeca M, Goossens FA. 2005. Aggression, social cognitions, anger and sadness in bullies and victims. *J Child Psychol Psychiatry* 46:186–197.
- Card NA, Little TD. 2006. Proactive and reactive aggression in childhood and adolescence: A meta-analysis of differential relations with psychosocial adjustment. *Int J Behav Dev* 30:466–480.
- Cillessen AHN, Mayeux L. 2004. From censure to reinforcement: Developmental changes in the association between aggression and social status. *Child Dev* 75:147–163.
- Crick NR, Dodge KA. 1994. A review and reformulation of social information-processing mechanisms in children's social-adjustment. *Psychol Bull* 115:74–101.
- Crick NR, Dodge KA. 1996. Social information-processing mechanisms in reactive and proactive aggression. *Child Dev* 67:993–1002.
- Dodge KA, Coie JD. 1987. Social-information-processing factors in reactive and proactive aggression in children's peer groups. *J Pers Soc Psychol* 53:1146–1158.
- Ellis WE, Zarbatany L. 2007. Peer group status as a moderator of group influence on children's deviant, aggressive, and prosocial behavior. *Child Dev* 78:1240–1254.
- Erdley CA, Asher SR. 1996. Children's social goals and self-efficacy perceptions as influences on their responses to ambiguous provocation. *Child Dev* 67:1329–1344.
- Farmer TW, Estell DB, Bishop JL, O'Neal KK, Cairns BD. 2003. Rejected bullies or popular leaders? The social relations of aggressive subtypes of rural African American early adolescents. *Dev Psychol* 39:992–1004.
- Gilbert P, McGuire M. 1998. Shame, social roles and status: The psychobiological continuum from monkey to human. In: Gilbert P, Andrews B (eds). *Shame: Interpersonal Behavior, Psychopathology and Culture*. Oxford: Oxford University Press, pp 99–125.
- Hawley PH. 2003. Prosocial and coercive configurations of resource control in early adolescence: A case for the well-adapted Machiavellian. *Merrill-Palmer Q* 49:279–309.
- Haynie DL, Nansel T, Eitel P, Crump AD, Saylor K, Yu K et al. 2001. Bullies, victims, and bully/victims: Distinct groups of at-risk youth. *J Early Adolesc* 21:29–49.
- Hodges EVE, Malone MJ, Perry DG. 1997. Individual risk and social risk as interacting determinants of victimization in the peer group. *Dev Psychol* 33:1032–1039.
- Kaltiala-Heino R, Rimpela M, Rantanen P, Rimpela A. 2000. Bullying at school—an indicator of adolescents at risk for mental disorders. *J Adolesc* 23:661–674.
- Kenny DA, La Voie L. 1984. The social-relations model. *Adv Exp Soc Psychol* 18:141–182.
- Kiefer SM, Ryan AM. 2008. Striving for social dominance over peers: The implications for academic adjustment during early adolescence. *J Educ Psychol* 100:417–428.
- Kumpulainen K, Rasanen E. 2000. Children involved in bullying at elementary school age: Their psychiatric symptoms and deviance in adolescence. An epidemiological sample. *Child Abuse Negl* 24:1567–1577.
- Lindenberg S. 1996. Continuities in the theory of social production functions. In: Ganzeboom H, Lindenberg S (eds). *Verklarende Sociologie: Opstellen voor Reinhard Wippler*. Amsterdam: Thesis, pp 169–184.
- Lindenberg S. 2001. Social rationality versus rational egoism. In: Turner J (ed.). *Handbook of Sociological Theory*. New York: Kluwer Academic/Plenum, pp 635–668.
- Little TD, Brauner J, Jones SM, Nock MK, Hawley PH. 2003a. Rethinking aggression: A typological examination of the functions of aggression. *Merrill-Palmer Q* 49:343–369.
- Little TD, Henrich CC, Jones SM, Hawley PH. 2003b. Disentangling the “whys” from the “whats” of aggressive behaviour. *Int J Behav Dev* 27:122–133.
- Locke KD. 2003. Status and solidarity in social comparison: Agentic and communal values and vertical and horizontal directions. *J Pers Soc Psychol* 84:619–631.
- Loeber R, Dishion TJ. 1983. Early predictors of male delinquency. *Rev Psychol Bull* 94:68–99.
- Monks CR, Smith PK. 2006. Definitions of bullying: Age differences in understanding of the term, and the role of experience. *Br J Dev Psychol* 24:801–821.
- Muthén LK, Muthén BO. 2004. *Mplus version 3.0*. [Computer Software]
- Nansel TR, Overpeck M, Pilla RS, Ruan WJ, Simons-Morton B, Scheidt P. 2001. Bullying behaviors among US youth—preva-

- lence and association with psychosocial adjustment. *J Am Med Assoc* 285:2094–2100.
- Nansel TR, Craig W, Overpeck MD, Saluja G, Ruan WJ, the Health Behavior in School-aged Children Bullying Analyses Working Group. 2004. Cross-national consistency in the relationship between bullying behaviors and psychosocial adjustment. *Arch Pediatr Adolesc Med* 158:730–736.
- O'Connell P, Pepler D, Craig W. 1999. Peer involvement in bullying: Insights and challenges for intervention. *J Adolesc* 22:437–452.
- Ojanen T, Gronroos M, Salmivalli C. 2005. An interpersonal circumplex model of children's social goals: Links with peer-reported behavior and sociometric status. *Dev Psychol* 41:699–710.
- Ojanen T, Aunola K, Salmivalli C. 2007. Situation-specificity of children's goals: Changing goals according to changing situations? *Int J Behav Dev* 31:232–241.
- Olweus D. 1978. *Aggression in Schools: Bullying and Whipping Boys*. Washington, DC: Hemisphere.
- Olweus D. 1993a. Bullies on the playground. The role of victimization. In: Hart CH (ed.). *Children on Playgrounds: Research Perspectives and Applications*. Albany: SUNY, pp 85–128.
- Olweus D. 1993b. *Bullying at School. What we Know and What we Can Do*. Oxford/Cambridge, MA: Blackwell.
- Olweus D. 1993c. Victimization by peers: antecedents and long-term outcomes. In: Rubin KH, Asendorpf JB (eds). *Social Withdrawal, Inhibition, and Shyness in Childhood*. Hillsdale, NJ: Erlbaum, pp 315–341.
- Pakaslahti L, Keltikangas-Jarvinen L. 1998. Types of aggressive behavior among aggressive-preferred, aggressive non-preferred, nonaggressive preferred and non-aggressive nonpreferred 14-year-old adolescents. *Pers Individ Differences* 24:821–828.
- Pellegrini AD. 2002. Affiliative and aggressive dimensions of dominance and possible functions during early adolescence. *Aggression Violent Behav* 7:21–31.
- Pellegrini AD, Long JD. 2002. A longitudinal study of bullying, dominance, and victimization during the transition from primary school through secondary school. *Br J Dev Psychol* 20:259–280.
- Pellegrini AD, Bartini M, Brooks F. 1999. School bullies, victims, and aggressive victims: Factors relating to group affiliation and victimization in early adolescence. *J Educ Psychol* 91:216–224.
- Perry DG, Kusel SJ, Perry LC. 1988. Victims of peer aggression. *Dev Psychol* 24:807–814.
- Poulin F, Boivin M. 2000. Reactive and proactive aggression: Evidence of a two-factor model. *Psychol Assess* 12:115–122.
- Prinstein MJ, Cillessen AHN. 2003. Forms and functions of adolescent peer aggression associated with high levels of peer status. *Merrill-Palmer Q* 49:310–342.
- Raine A, Dodge K, Loeber R, Gatzke-Kopp L, Lynam D, Reynolds C, Stonthamer-Loeber M, Liu JH. 2006. The Reactive-Proactive Aggression Questionnaire: Differential correlates of reactive and proactive aggression in adolescent boys. *Aggressive Behav* 32:159–171.
- Renshaw PD, Asher SR. 1983. Children's goals and strategies for social-interaction. *Merrill-Palmer Q* 29:353–374.
- Rodkin PC, Berger C. 2008. Who bullies whom? Social status asymmetries by victim gender. *Int J Behav Dev*.
- Rodkin PC, Farmer TW, Pearl R, Van Acker R. 2006. They're cool: Social status and peer group supports for aggressive boys and girls. *Soc Dev* 15:175–204.
- Salmivalli C, Nieminen E. 2002. Proactive and reactive aggression among school bullies, victims, and bully-victims. *Aggressive Behav* 28:30–44.
- Salmivalli C, Peets K. 2008. Bullies, victims, and bully-victim relationships. In: Rubin K, Bukowski W, Laursen B (eds). *Handbook of Peer Interactions, Relationships, and Groups*. New York: Guilford Press, pp 322–340.
- Salmivalli C, Lagerspetz K, Bjorkqvist K, Osterman K, Kaukiainen A. 1996. Bullying as a group process: Participant roles and their relations to social status within the group. *Aggressive Behav* 22:1–15.
- Salmivalli C, Ojanen T, Haanpaa J, Peets K. 2005. "I'm OK but you're not" and other peer-relational schemas: Explaining individual differences in children's social goals. *Dev Psychol* 41:363–375.
- Schwartz D, Dodge KA, Coie JD. 1993. The emergence of chronic peer victimization in boys play groups. *Child Dev* 64:1755–1772.
- Snijders TAB, Kenny DA. 1999. The social relations model for family data: A multilevel approach. *Pers Relationships* 6:471–486.
- Vaillancourt T, Hymel S. 2006. Aggression and social status: The moderating roles of sex and peer-valued characteristics. *Aggressive Behav* 32:396–408.
- Van Duijn MAJ, Snijders TAB, Zijlstra BJH. 2004. p<sub>2</sub>: a random effects model with covariates for directed graphs. *Stat Neerl* 58:234–254.
- Veenstra R, Lindenberg S, Oldehinkel AJ, De Winter AF, Verhulst FC, Ormel J. 2005. Bullying and victimization in elementary schools: A comparison of bullies, victims, bully/victims, and uninvolved preadolescents. *Dev Psychol* 41:672–682.
- Veenstra R, Lindenberg S, Zijlstra BJH, De Winter AF, Verhulst FC, Ormel J. 2007. The dyadic nature of bullying and victimization: Testing a dual perspective theory. *Child Dev* 78:1843–1854.
- Zijlstra BJH, Van Duijn MAJ, Snijders TAB. 2006. The multilevel p<sub>2</sub> model: A random effects model for the analysis of multiple social networks. *Methodology* 2:42–47.